METHOD TO COMPENSATE FOR MEMORY EFFECT IN LOOKUP TABLE BASED DIGITAL PREDISTORTERS

Abstract of the Disclosure

Methods and apparatus are provided for nonlinear compensation of a supposedly linear behaving semiconductor device (e.g., power amplifier). A measure corresponding to the temperature of the silicon in the semiconductor device can be derived from both current and previous inputs using a filter (e.g., infinite impulse response or finite impulse response). This measure can then be used as an index, or address, of a lookup table. The lookup table is continually updated through a feedback loop where the updated lookup table values (e.g., correction factors) are based on the differences between the desired output signals and the measured output signals. A lookup table value, when combined with an input signal, will distort the input signal in an amount that is substantially an inverse of the distortion introduced by the semiconductor device. As a result, an output signal that is in substantial linear relationship with the input signal can be achieved.